

'TEACH' ... don't 'TELL'

Presenting "Eureka Moments" within a "Learning Pit"



Workshop Notes:

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*Examples here are taken from the "Understanding Math" programs.

DESCRIPTION: This hands-on workshop models lessons which lead to conceptual understanding through hands-on, online and video support. We begin with "The Learning Pit", an environment which supports resilient learners in which we Build it, Draw it, Talk it, Write it and then OWN IT. When we OWN IT, then we UNDERSTAND IT. It encourages grappling, productive struggling with concepts which often lead to "Eureka Moments" where the response is, "I FOUND IT!" This is a process in which we "TEACH but DO NOT TELL". Concepts include addition and subtraction with regrouping, partial products, patterning and operations with fractions followed by humorous videos, "Math or Magic" and "The Learning Pit". We end with a short video, "Coding To Learn Mathematics" to show how productive struggling results in concrete action to result in "Eureka Moments".

Please access ... www.umathx.com/professional-learning Session 1

- See Video – "Teach, don't Tell ... Presenting Eureka Moments within a Learning Pit"
- See Corresponding Workshop Notes
- See Resources Online at www.umathx.com/software/ for hands-on workshops

[RESOURCE-1](#)

[RESOURCE-2](#)

[RESOURCE-3](#)

[RESOURCE-4](#)

Video 2:37

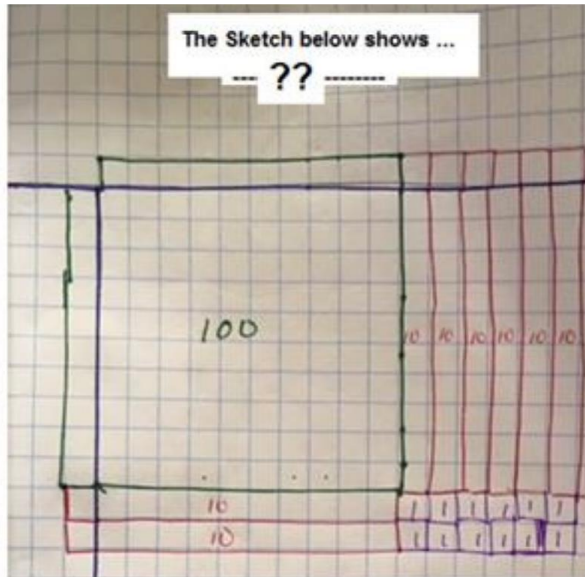
The Learning Pit

Were you TAUGHT or were you TOLD?? Do YOU TEACH or DO YOU TELL??

Stop Video

4:42

Hands-on



X

- _____ through _____ Ones by Ones
- _____ through _____ Ones by Tens
- _____ through _____ Tens by Ones
- _____ through _____ Tens by Tens

Developing the Rule

Ex. 3 - Proper Fraction X Proper Fraction

We want to multiply $\frac{3}{4} \times \frac{2}{5}$

This means that we want $\frac{3}{4}$ of $\frac{2}{5}$ of a group.



This is 1 shape... - break it into 5 equal parts

Stop Video


11:00

Hands-on

Here ...**Show & Give access route to PreRelease of UMathXI

The Trick Machine

Explanations with Pictures

- Pick any number. 
- Add 3 to it.
- Double your answer.
- Subtract 4.
- Divide by 2.
- Subtract the first number.

Stop Video

13:40

Hands-on

Algebraic
Thinking

Stop Video

14:11

Hands-On

Explanation with Symbols

• Pick any number.	Let x be the number	
• Add 3 to it.		
• Double your answer.		
• Subtract 4.		
• Divide by 2.		
• Subtract first number.		

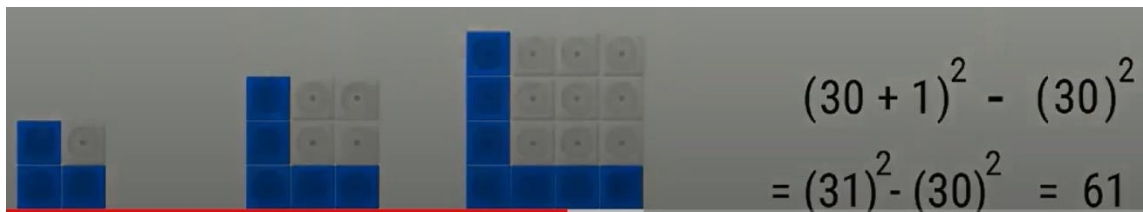
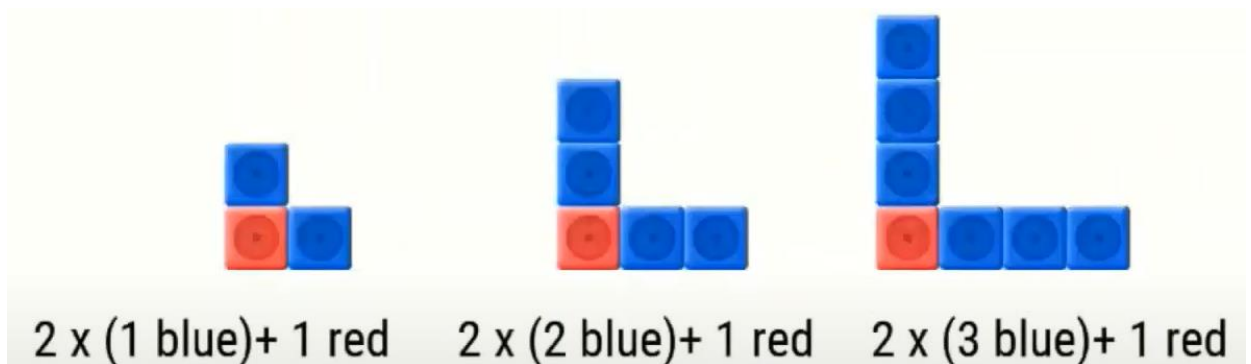
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15:50

Math is Pattern ... LEARNING FROM CONCRETE TO ABSTRACT

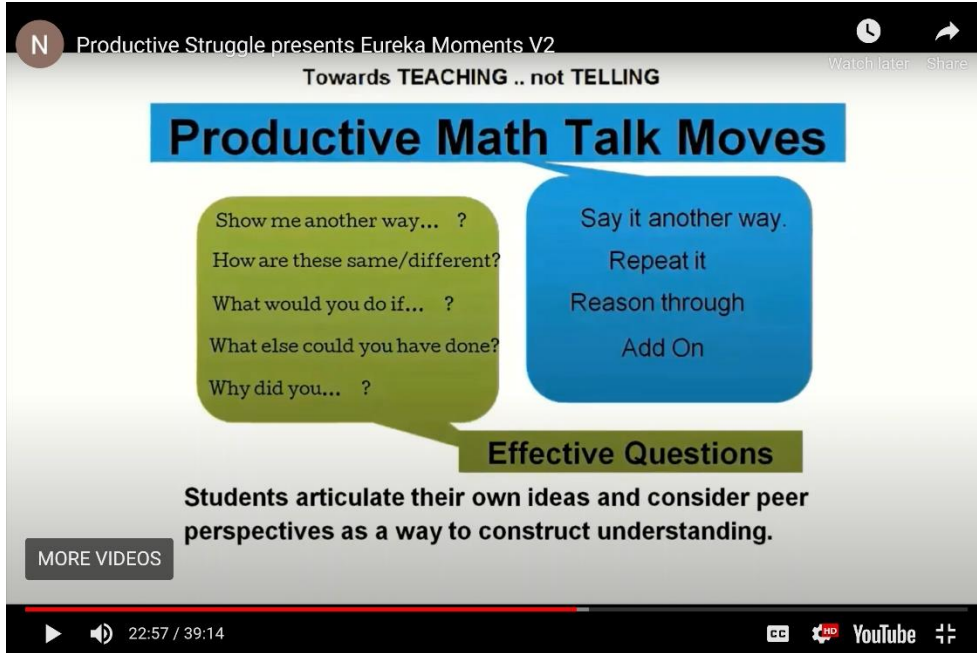
Hands-On

3, 5, 7, ... (what is the 30th term?)



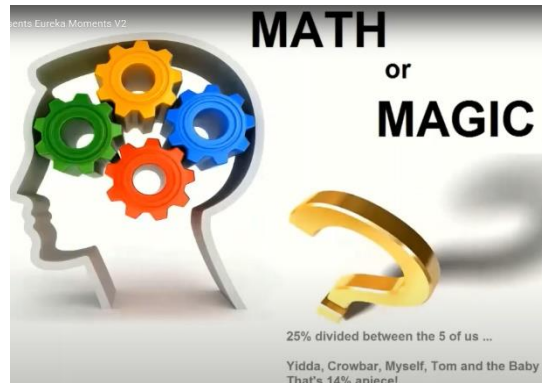
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21:50

Towards Teaching ... not Telling Productive Math Talk Moves



*Discuss them ..
List them..*

Stop Video
22:28
Hands-On



Video
25:00
Hands-On

The Learning Pit ... EUREKA is Greek for ...

Video
31:34

Coding Models Teaching with Understanding Here give free access to the robot on the screen